Forest Research Notes

Northeastern Forest Experiment Station

FOREST SERVICE, U.S. DEPT. OF AGRICULTURE, 102 MOTORS AVENUE, UPPER DARBY, PA.

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THE VIRGINIA PINE SAWFLY OUTBREAK 1955-1959

A serious outbreak of the pine sawfly, Neodiprion pratti pratti (Dyar), now extends over a gross area of more than 14 million acres in Maryland, Virginia, and North Carolina. Since 1955, the approximate extent and severity of infestation have been determined from aerial and ground surveys by the U. S. Forest Service and state personnel.[1] Indications are that the outbreak will continue in 1960.

This sawfly, commonly called the Virginia pine sawfly, recently was renamed by Ross[2] as a subspecies of the N. pratti complex. Previously it was known as Neodiprion dyari Roh.

The principal host trees are Virginia pine (Pinus virginiana Mill.), pitch pine (P. rigida Mill.), and shortleaf pine (P. echinata Mill.). In rare instances feeding on loblolly pine (P. taeda L.) has been observed. Where pitch pine is abundant in Maryland and northern Virginia, the sawfly favors this species for egg-laying; and adjacent Virginia pines may be only lightly infested. However, Virginia pine is the most generally abundant of the two hosts, and pure stands of it may be subjected to severe and repeated defoliations. Shortleaf pine appears to be the favored host in southern Virginia and North Carolina.

This insect is a spring feeder and consumes only old foliage. Sometimes the tender bark on twigs is chewed when populations are high. The feeding may be masked within a few weeks after it is completed by the elongating shoots and new foliage. However, trees subjected to several years' de-

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[1]The data in this report were compiled from records of the U.S. Forest Service Northeastern and Southeastern Forest Experiment Stations and the Beltsville Forest Insect Laboratory, the Virginia Division of Forestry, and the North Carolina Forest Service.

[2]Ross, H.H. The taxonomy and evolution of the sawfly genus Neodiprion. Forest Sci. 1: 196-209. 1955.

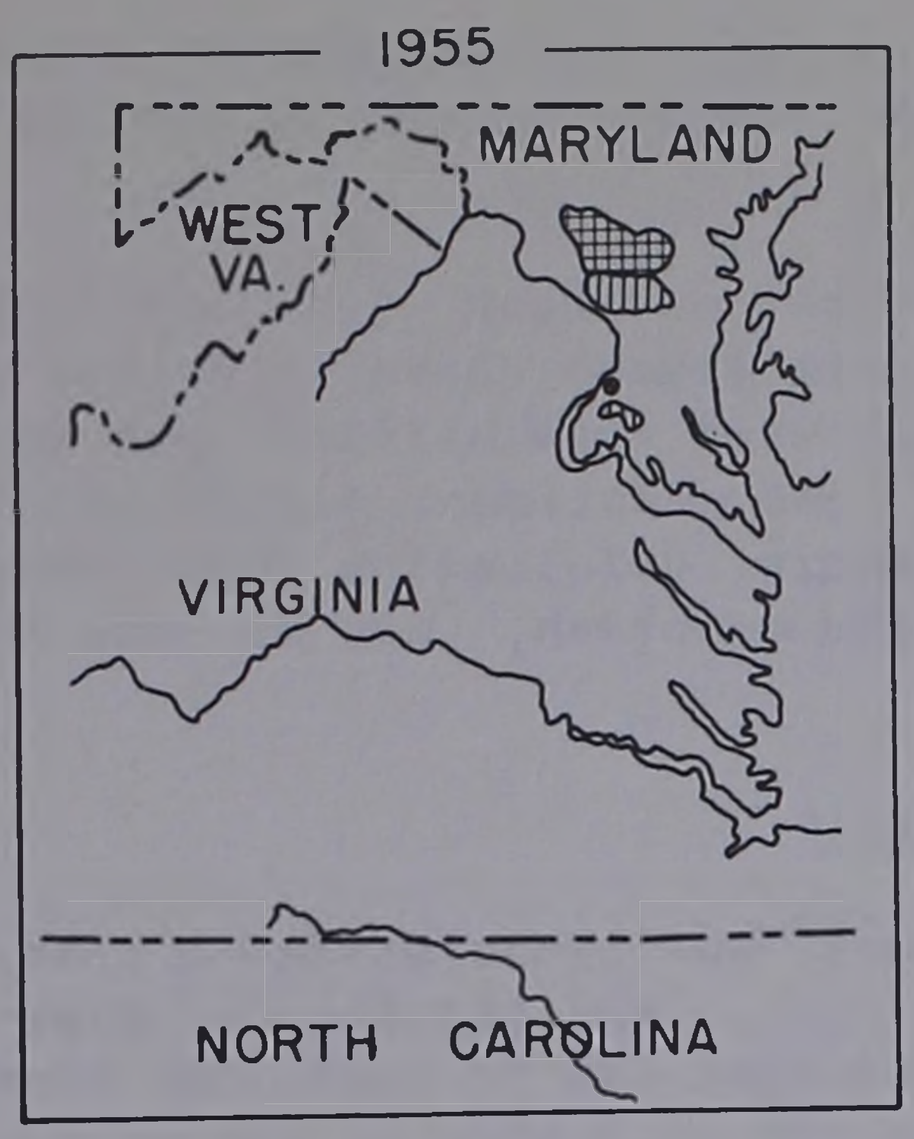
Table 1.--Virginia pine sawfly defoliation 1955-59 (in thousand acres)[1]

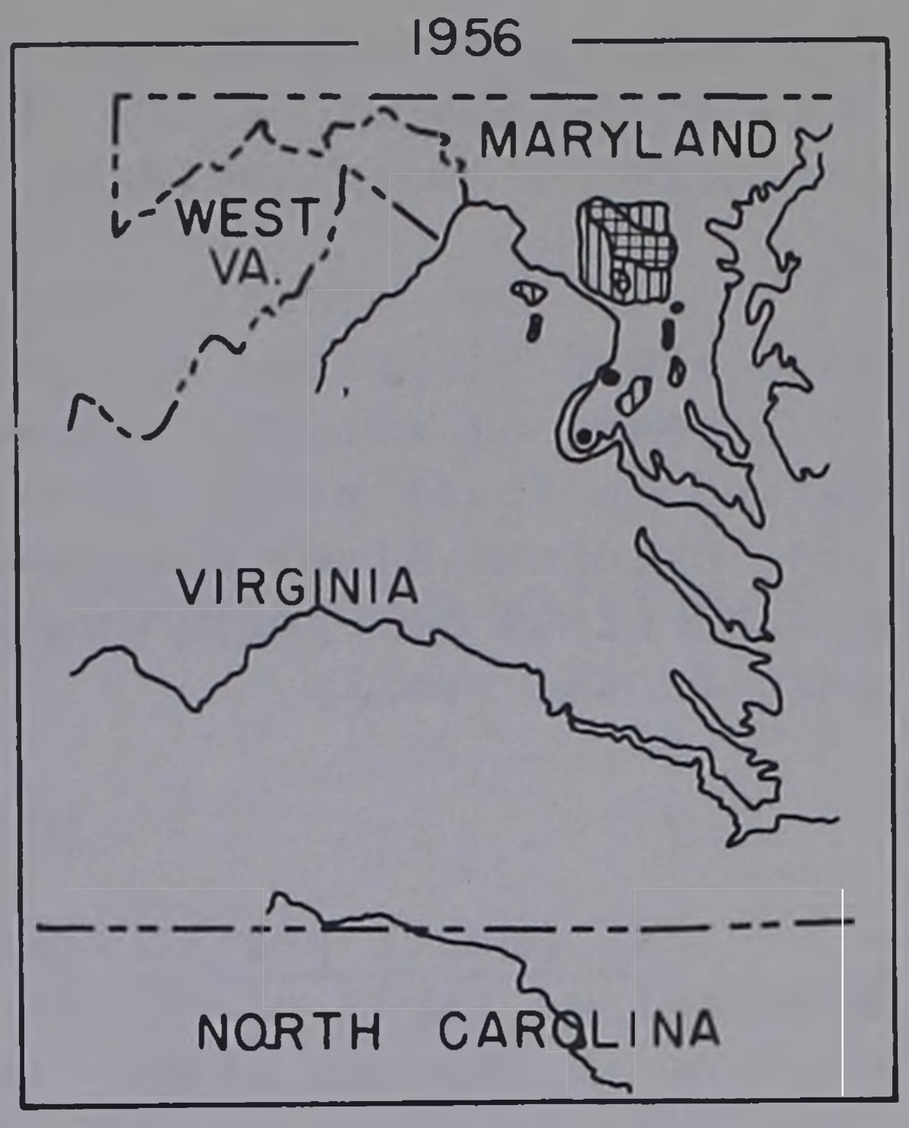
Year	Light			Moderate			Heavy			Total
	Maryland	Virginia	North Carolina	Maryland	Virginia	North Carolina	Maryland	Virginia	North Carolina	
					GROSS ACREAGE[2]					
1955	156	--	--	170	--	--	--	--	--	326
1956	258	40	--	86	--	--	--	--	--	384
1957	921	755	--	929	41	--	--	--	--	2,646
1958	--	--	--	2,625	333	50	100	--	--	3,108
1959	642	5,835	--	817	5,141	365	142	1,341	48	14,331
					NET ACREAGE[3]					
1955	15	--	--	14	--	--	--	--	--	29
1956	19	4	--	9	--	--	--	--	--	32
1957	129	106	--	130	6	--	--	--	--	371
1958	--	--	--	315	117	13	12	--	--	457
1959	77	992	--	98	874	31	17	228	11	2,328

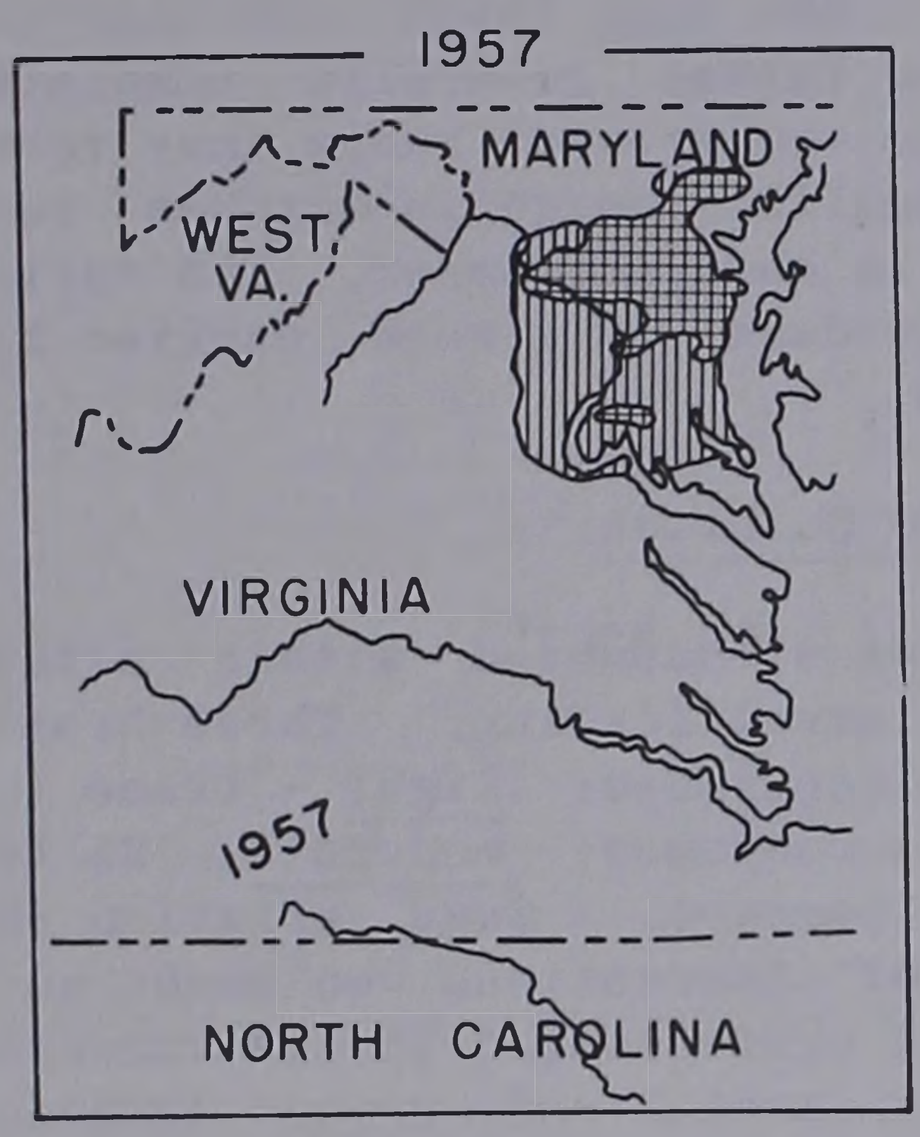
[1]From McIntyre, T., and Heller, R. C. The Virginia pine sawfly outbreak 1955-1959. U.S. Forest Service. (Processed, 4 pp.). 1960. See also, the Virginia pine sawfly in 1959. A special cooperative report of the Beltsville Forest Insect Laboratory, North Carolina Forest Service, Virginia Division of Forestry, Northeastern Forest Experiment Station, and Southeastern Forest Experiment Station compiled by T. McIntyre and R. C. Heller. (Processed, 7 pp.). 1959.

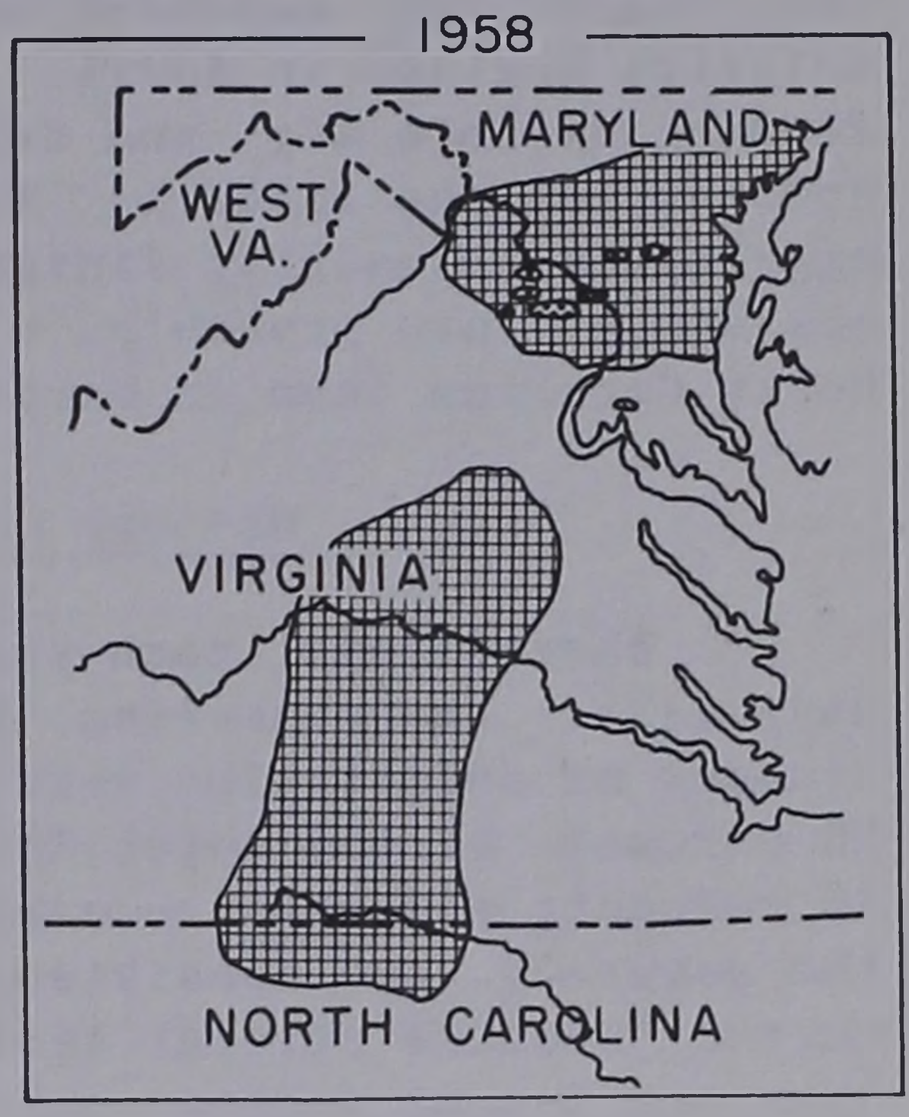
[2]Includes all forest types and land areas where defoliation was recorded.

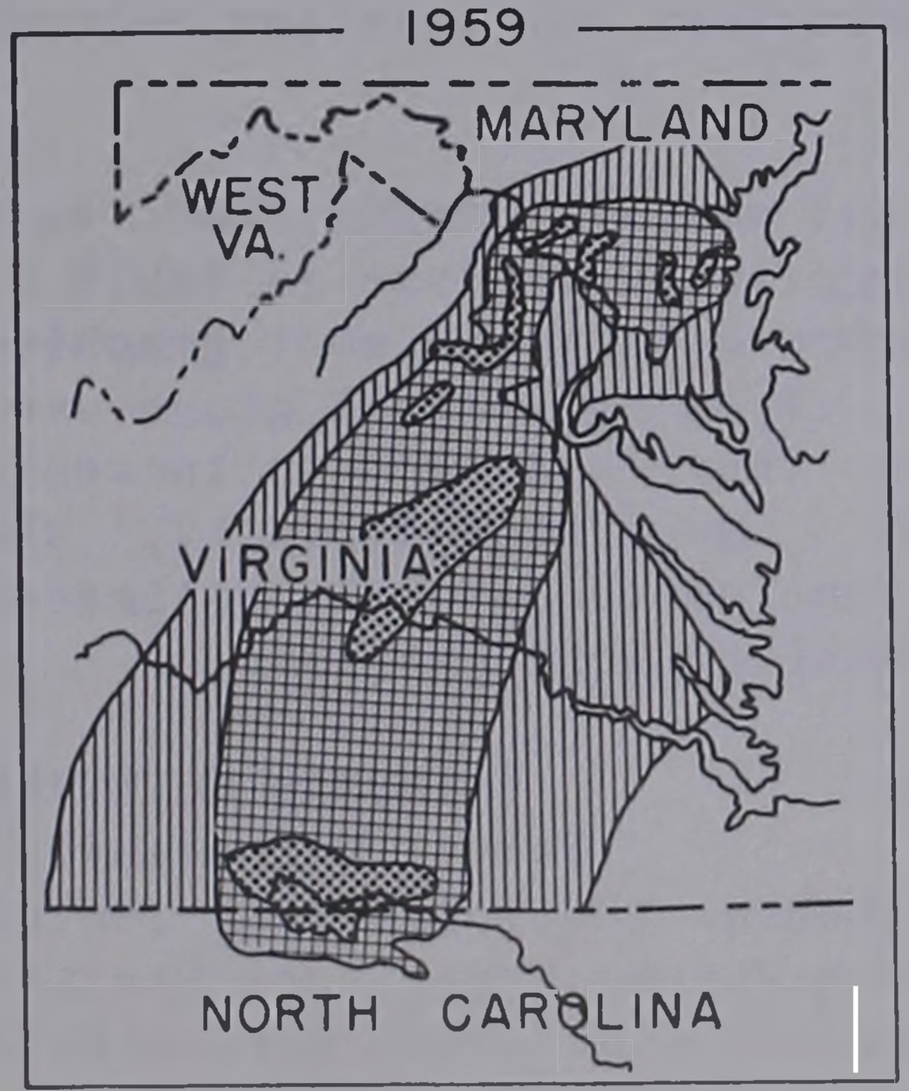
[3]Based on percent pine type from aerial survey or Forest Service inventory records.











DEFOLIATION BY THE VIRGINIA PINE SAWFLY

1955—1959

LIGHT DEFOLIATION

MODERATE DEFOLIATION

HEAVY DEFOLIATION

SCALE

0 20 40

foliation can be distinguished readily from uninfested trees during the summer months by the thinned-out or feathery appearance of their foliage.

In the oldest areas of the outbreak (in Maryland) some mixed Virginia and pitch pine stands have withstood 3 to 5 years of attack. Some scattered tree killing has occurred in these areas, however; and additional mortality in the Patuxent River drainage, where defoliation has been severe from the beginning of the outbreak, may be due in part to the sawfly.

Life Cycle

N. pratti pratti has just one generation a year. Egg-laying takes place in the fall, and the insect overwinters in the egg stage (egg surveys can be conducted from late fall to early spring to provide estimates of the potential degree of infestation). The eggs hatch and larval activity begins in April. The larvae generally complete feeding by late May and drop to the ground where they form cocoons in the litter. The adults emerge in October and egg-laying is usually finished in early November. The various stages are probably a few days to a week earlier in North Carolina than in Maryland.

History Of The Outbreak

The surveys each year were conducted within a few days after the cessation of larval feeding. Three broad classes of defoliation were distinguished: light - trace to 25 percent of the total foliage consumes; moderate - 25 to 75 percent; and heavy - over 75 percent. Some variation in the accuracy and consistency of observations no doubt occurred, because several agencies participated in the surveys over the 5-year period and both aerial and ground methods were used. However, the data given here are standardized so far as possible and are as accurate as the existing records permit.

The estimated gross and net acreages defoliated each year according to the three categories are given in table 1. The rapid development of the outbreak is shown most graphically in the accompanying maps. From an initial gross area of infestation of 326,000 acres there has been an increase to over 14 million acres in 1959. More significantly, the net pine acreage defoliated has increased from an estimated 29,000 acres in 1955 to over 2 million acres in 1959.

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